The ITER CLI (Commission Locale d'information) held its first General Assembly meeting on 7 December 2009 and the second meeting on 24 February, both in Cadarache. The IO submitted the updated Safety Files and RPrS documentation to the French Nuclear

Simulation and validation of the generation, confinement and loss processes for (post-disruption) runaway electrons requires increased effort. The potential impact of REs on PFCs in ITER justifies a significant allocation of resources to improve the physics basis for simulation of their behaviour in ITER.

IC-6 agreed on a charge to ITER STAC for the STAC-9 meeting in October 2010 which includes, inter alia, the requests: (i) Comment on the community plans to improve theoretical and experimental understanding of steady and transient heat loads as they relate to the design of first walls; (ii) Comment on opportunities for the community to improve theoretical and experimental predictions of edge characteristics and H-Mode thresholds in ITER-relevant regimes.

In order to prepare appropriate input to STAC, we recommend a collaboration between the relevant ITPA TGs and the IO: (i) The aim would be to prepare a report on each of these points to summarize the key outstanding issues, R&D activities underway and additi

MHD, Disruptions and Control (A. Sen)

Six Working Groups have been formed to address very specific issues related to ITER design and construction:

- WG-1 Waveforms of current in error field correction coils. Hypothetical waveforms were developed that represent the extreme limit of what the error field correction coils might be asked to do with feedback-

destabilization of fast ion-stabilized sawteeth has been demonstrated (AUG, HL-2A). ICRH destabilization of NBI-stabilized sawteeth is a fast ion effect (JET).

Pedestal structure. The pedestal height and width is independent of heating source (NB, IC and EC). The EPED1 model for pedestal width/height is promising: (i) there is agreement over a wide range of width/height; this extrapolates to ~100 kPa for ITER; the pedestal height prediction for ITER is $n_{ped} = 7\times10^{19}$ m^{-3}, $T_{ped} = 4.1$ keV.

I-mode. Suppressing access to standard H-mode on C-Mod (e.g. with unfavourable grad-B drift) results in the I-mode with an energy transport barrier, but without a particle transport barrier. There are no (or very small) ELMs with H-mode like confinement, but no sign of power degradation.

L-H transition. A key question for ITER is the quality of the confinement as one starts to exceed the L-H threshold. Experiments on JET indicate that 'good H-mode' is not achieved until up to a factor of two above the threshold power (subsequent discussions noted that in some JET regimes good H-mode is achieved closer to the threshold). The pressure gradient saturates before the ELM (AUG). A new TS system on MAST clearly indicates density pedestal formation in advance of the temperature pedestal.

SOL and Divertor (B. Lipschultz)

The DIV/SOL group research plan was drafted to address ITER needs (Fall 2008). Five task groups were formed and the DIV/SOL research plan revised (January-May 2009):

- Tritium retention and removal (leaders – R. Doerner, J. Roth).
- Tungsten (leaders – A. Kallenbach, Y. Ueda).
- Dust (leaders – N. Ashikawa, D. Rudakov).
- Heat fluxes to plasma-facing surfaces (leaders – M. Lehnen, A. Leonard).
- Material migration (leaders – V. Philipps, P. Stangeby).

Tritium retention. Implantation of T into Be at higher temperatures lowers the amount retained and leads to a requirement of higher temperatures to remove the same fraction of implanted T. Small amounts of impurities in Be also raises the temperatures required for T removal. Ion cyclotron wall cleaning (ICWC) has been shown useful for cleaning the near surface (~5 nm) of T which corresponds to of order a gram T in ITER. Further development of ICWC and alternatives are needed for removal of T in co-deposited (T/C, T/Be) layers which are thicker – 1-100 microns.

Tungsten. Retention increases with dpa damage; H in traps saturate at high dpa. Increasing the implantation temperature strongly drops the T retained in nuclear damaged tungsten. Tungsten melt layer motion is increasingly important to understand. Melted regions form

Transport and Confinement (S. Kaye)

The Momentum database (M. Yoshida) is being developed with global and local parameters. This will enable gyrokinetic calculations to study the source of momentum diffusivities and pinches. The first results will be discussed at the Fall 2009 and Spring 2010 meetings. More data is needed to complete the database. Discussion focussed on the methodology for computing χ_φ and v_{pinch} to make sure everyone is doing the same thing. M. Yoshida is working with K. Thomsen to turn the database into a standard form for release to the group (the DB is still private).

The L-H threshold database (J. Hughes) is to be updated with profile information for model testing and reducing uncertainties in P_{L-H}. The plan is to discuss details (data, validation) at the Fall 2010 meeting.

The Profile database (C. Roach) has been expanded to include data from impurity/Helium transport experiments (no contributions yet). The use as resource to store ITER DEMO discharges for model validation work is still under discussion.

Presently inactive, but being maintained are the L-mode and H-mode databases, which are still being maintained by K. Thomsen.

L-H threshold studies. Several Joint Experiments are devoted to this high priority area, and important results extend beyond Joint Experiment work as well. Determining the species dependence of P_{L-H} was one of our most active areas. The same P_{L-H} was found in ^{4}He and D with ECH (AUG). Other devices have shown P_{L-H}(He) is greater than P_{L-H}(D), but in most cases not dramatically greater (MAST, DIII-D). H-mode confinement in ^{4}He is lower than that in D (AUG). High Harmonic Fast Waves (HHFW) were used to heat pure helium and deuterium plasmas (NSTX). Continuous ramping of HHFW power allowed for 'fine' determination of P_{L-H} and P_{H-L}(NSTX). A perturbation technique was used to determine HHFW heating efficiency ($<0.32>\pm0.1$) (NSTX). P_{L-H}(He) ~ $1.2P_{L-H}$(D) (NSTX) with no

China (G. Zhuang/B. Wan)

MOST has launched the domestic MCF program to support Chinese participation in ITER. MCF research is focused on two major machines (EAST and HL-2A) but extended beyond the two major institutes (ASIPP and SWIP). Several projects have been launched in the

Japan (Y. Kamada)

The Broader Approach (BA) is being carried out with the objectives: (i) take the initiative of fusion research; (i) development of fundamental fusion technology; and (iii) human resource development. The JT-60SA project is conducted under the BA Satellite Tokamak Programme by Europe and Japan, and the Japanese National Programme. The project mission of JT-60SA is to contribute to early realization of fusion energy by supporting exploitation of ITER and by complementing ITER with resolving key physics and engineering issues for DEMO

Theory and modelling includes a wide range of activities:

- Particle transport and fuelling relevant to ITER reference scenarios.
- Analysis and specification of plasma reference scenarios, including plasma initiation, start-up and ramp-down.
- Calculation of the ECE losses.
- 3-D modelling of disurptions/VDEs – evolution, FW loads, mitigation.
-

active j(r) control in ITER-relevant conditions. ICRF upgrades include an advanced 4 strap antenna rotatable and alignable with B to reduce or eliminate sheath-induced sputtering and real-time adaptive tuning. Outer divertor upgrade implements Demo-like continuous vertical plate with tungsten lamella plate in the high heat flux region, capable of handling higher power and energy.

mechanics of the new proposed database policy, including management aspects and the various kinds of databases – public, private, working – and the access to those databases. It was recommended the databa